

U.S. Patent Application Serial No. **10/849,956**
Amendment filed December 22, 2005
Reply to OA dated October 4, 2005

REMARKS

Claims 1, 3-5, 8, are 10 are pending in this application.

Claims 2, 6, 7, 9, 11, and 12 have been cancelled.

Original claims 1, 3-5, 8, are 10 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the applicants regard as their invention. The support for the claim amendments is as follows:

- Claim 1 is based on p.5, lines 27-28, p.6, lines 1-5, 11-15 (detection section, authentication section, sensor); p.9, lines 24-25 (piezoelectric element); p.9, lines 25-28, p.10, lines 1-2, p.13, lines 7-9 (fingerprint detection, signal generation; identity authentication)
- Claim 8 is based on p.16, line 19 (detection circuit section)
- Claim 10 is based on p.27, lines 1-8 (supporting section, rectangular aperture, piezoelectric element)

The applicants respectfully submit that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated **October 4, 2005**.

Claims 1-2, 6-7, and 9-11 are rejected under 35 USC 102(a) as being anticipated by Funabashi Takeshi, et al. (JP 2004-171307).

Claims 2, 6, 7, 9, and 11 have been cancelled.

Takeshi discloses a fingerprint authentication device comprising a detection section that

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collects fingerprint image data and motion data by detecting a pattern of spiral irregularity between the surface of the detection section and a finger, and an authentication section that authenticates the fingerprint based on time-series fingerprint image data. In contrast, the claimed invention comprises a detection circuit section, a piezoelectric element protruding therefrom, and an authentication section. **Unlike the invention of amended claim 1, Takeshi does not teach a piezoelectric element that captures a variance in friction of a moving finger.**

Additionally, **Takeshi fails to teach the claimed detection circuit section.** Regarding a detection section, Paragraph 0014 of **Takeshi** discloses that “the fingerprint sensor generates the **two-dimensional image** of the **pattern of irregularity** of the **front face** of the matter put on the detection side and outputs the two-dimensional image as fingerprint data.” (emphasis added). In contrast, the force-sensitive sensor and the detection circuit section of the claimed invention detects, filters, and transmits friction variation information regarding the **three-dimensional shape** of a **finger**, including the fingerprint, but not only the fingerprint. In other words, while the invention of **Takeshi** relies on **visual** information, the claimed invention uses **tactile** information. An identity authentication system that utilizes tactile information gathered from a finger is distinguished from an identity authentication system that relies on visible fingerprint information because the technique for reproducing visual information is known in the art and, therefore, subject to copying and forgery. However, the present invention is far more secure against forgery because the technique for reproducing recorded tactile finger information was not previously available.

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Additionally, the claimed detection circuit section **filters** the generated signal for an **appropriate frequency range**, and sends the **filtered signal** to the authentication section. **Takeshi** does not teach a detection circuit section that refines three-dimensional finger data by filtering the signal for an appropriate frequency range. The filtering aspect of the claimed invention contributes to a greater degree of accuracy in identity authentication than if unfiltered data were used.

Furthermore, **Takeshi does not disclose the claimed authentication section**. Paragraphs 0002, 0007, and 0008 of **Takeshi** teach that the identity of a user is authenticated by “collating” the detected “spiral irregularity currently formed in the front face of the inside part of by the side tip from the 1st joint of human being’s finger” and “the fingerprint registered into the . . registration storage means.” The authentication section of **Takeshi** compares **two-dimensional images of fingerprints**. Please see **Takeshi**, Figures 7 and 8, and paragraphs 0052-0057, for more detailed disclosure of “pattern matching” two-dimensional fingerprint images. **Takeshi** fails to teach the claimed invention because the claimed authentication section authenticates a user’s identity by converting the filtered signal received from the detection circuit section to **digital time-series output voltage data** representing the **three-dimensional shape of a finger**, including the fingerprint, but not only the fingerprint, and comparing this output voltage data with the registered output voltage data.

Without disclosing a protruding piezoelectronic element that captures a variance in friction of a moving finger; a detection circuit section that detects three-dimensional finger data, filters this

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data for an appropriate frequency range, and transmits the filtered data; and, an authentication section which compares digital time-series output voltage data in order to authenticate the identity of a user, **Takeshi** fails to anticipate every element of the claimed invention as recited in amended claim 1.

It is respectfully requested that the rejection be favorably considered.

Claim 12 is rejected under 35 USC 103(a) as being unpatentable over Gorman, et al. (US 20030123714).

Claim 12 has been cancelled.

Claims 3-5 and 8 are objected to as being dependent upon a rejected base claim.

As amended, **Takeshi** fails to teach every element of the invention of claim 1 and, therefore, does not anticipate amended base claim 1. Accordingly, claims 3-5 and 8 no longer depend on a claim that reads on **Takeshi**.

It is respectfully requested that the objection be favorably considered.

In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the

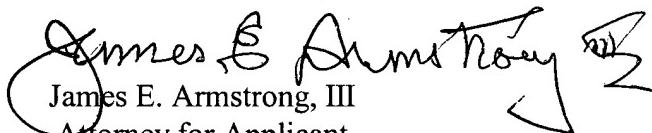
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Examiner is requested to contact the applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS,
HANSON & BROOKS, LLP


James E. Armstrong, III
Attorney for Applicant
Reg. No. 18,366

JEA/gia
Atty. Docket No. **040237**
Suite 1000
1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930



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Enclosures:

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